

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims

1 1. (Currently Amended): A thin-film magnetic head on a substrate having a
2 slider surface comprising:
3 a first magneto-resistive effect element configured to detect a magnetic signal
4 from a magnetic recording medium; and
5 a second magneto-resistive effect element disposed adjacent to the first magneto-
6 resistive effect element and configured to measure an amount of lapping of the first magneto-
7 resistive effect element along the slider surface,
8 the first magneto-resistive effect element comprising:
9 a first magneto-resistive effect film;
10 an upper shield film disposed above the first magneto-resistive effect film;
11 and
12 a lower shield film disposed below the first magneto-resistive effect film,
13 the second magneto-resistive effect element comprising a second magneto-
14 resistive effect film disposed between a first electrode and a second electrode, wherein the first
15 magneto-resistive effect film and the second magneto-resistive effect film have substantially
16 similar shapes having a structure that is substantially the same as that of the first magneto-
17 resistive effect element.

2-4. (canceled)

1 5. (Previously presented): The thin-film magnetic head according to claim 1,
2 wherein said substrate is formed of a non-magnetic material of Al₂O₃-TiC or SiC.

1 6. (Currently Amended): A thin-film magnetic head on a substrate having an
2 air bearing surface including:

3 a first magneto-resistive effect element configured to detect a magnetic signal
4 from a magnetic recording medium;

5 a first connection terminal configured to detect the magnetic resistance of said
6 first magneto-resistive effect element;

7 a second magneto-resistive effect element adjacent to said first magneto-resistive
8 effect element and configured to measure an amount of lapping of the first magneto-resistive
9 effect element along the slider surface; and

10 a second connection terminal configured to detect the resistance of said second
11 magneto-resistive effect element,

12 the first magneto-resistive effect element comprising:

13 a first magneto-resistive effect film;

14 [[an]] a first shield film disposed adjacent a first side of the first magneto-
15 resistive effect film; and

16 a second shield film disposed adjacent a second side of the first magneto-
17 resistive effect film opposite from the first side,

18 the second magneto-resistive effect element comprising a second magneto-
19 resistive effect film disposed between a first electrode and a second electrode, wherein the first
20 magneto-resistive effect film and the second magneto-resistive effect film have substantially
21 similar shapes ~~having a structure that is the same as that of the first magneto-resistive effect~~
22 ~~element.~~

7-12. (canceled)

1 13. (Currently Amended): A thin-film magnetic head comprising:
2 a first magneto-resistive effect element configured to read a magnetic signal
3 recorded on a magnetic disk and having an end portion that is configured to be exposed to an air
4 bearing surface; and
5 a second magneto-resistive effect element adjacent to the first magneto-resistive
6 effect element and configured to measure an amount of lapping of the first magneto-resistive
7 effect element at the air bearing surface,
8 the first magneto-resistive effect element comprising:
9 a first magneto-resistive effect film;
10 [[an]] a first shield film disposed adjacent a first side of the first magneto-
11 resistive effect film; and
12 a second shield film disposed adjacent a second side of the first magneto-
13 resistive effect film opposite from the first side,
14 the second magneto-resistive effect element comprising a second magneto-
15 resistive effect film disposed between a first electrode and a second electrode, wherein the first
16 magneto-resistive effect film and the second magneto-resistive effect film have substantially
17 similar shapes having a structure substantially the same as that of the first magneto-resistive
18 effect element.

14-16. (canceled)

1 17. (Previously presented): The thin-film magnetic head according to claim 1,
2 further comprising an inductive element coupled to the first magneto-resistive effect element and
3 configured to write information on a magnetic recording medium.

1 18. (Previously presented): The thin-film magnetic head according to claim 1,
2 wherein an end portion of the first magneto-resistive effect element constitutes a portion of the
3 slider surface.

19-20. (canceled)

1 21. (Previously presented): The thin-film magnetic head according to claim 6,
2 wherein a resistance characteristic of the second magneto-resistive effect element is configured
3 to change as a portion of the second magneto-resistive effect element is removed during lapping.

22. (canceled)

1 23. (Currently amended): A thin-film magnetic head on a substrate having a
2 slider surface comprising:

3 a first magneto-resistive effect element configured to detect a magnetic signal
4 from a magnetic recording medium, including a first magneto-resistive effect film, an upper
5 shield film disposed above the first magneto-resistive effect film, and a lower shield film
6 disposed below the first magneto-resistive effect film, wherein the first magneto-resistive effect
7 film, the upper shield film, and the lower shield film are stacked on said substrate; and

8 a second magneto-resistive effect element disposed adjacent to the first magneto-
9 resistive effect element and configured to measure an amount of lapping of the first magneto-
10 resistive effect element along the slider surface, the second magneto-resistive effect element
11 having a second magneto-resistive effect film disposed between a first electrode and a second
12 electrode, wherein the first magneto-resistive effect film and the second magneto-resistive effect
13 film have substantially similar shapes, and is substantially the same in structure as the first
14 ~~magneto-resistive effect element,~~

15 ~~wherein the first magneto-resistive effect film and the second magneto-resistive~~
16 ~~effect film are formed substantially coplanar.~~

1 24. (New): The thin-film magnetic head according to claim 1, wherein the
2 second magneto-resistive effect element does not include shield films disposed on each surface
3 of the second magneto-resistive film.